Collaborative Assistive Tool To Enable Novel Solutions (CATTENS) Phase 2

Completed Technology Project (2016 - 2017)

Project Introduction

CATTENS is a software application that is being developed to provide capabilities for Model-Based Engineering (MBE) and Model-Based Systems Engineering (MBSE).

The primary goal of CATTENS is to support early mission concept development in the Goddard Mission Design Lab (MDL), a collaborative engineering environment at Goddard Space Flight Center (GSFC). CATTENS is also intended to support CubeSat projects and other flight projects, especially in their early design phases.

The CATTENS architecture includes (1) a desktop GUI client tool with networking capabilities; and (2) a set of web services utilizing a message bus architecture to support collaboration. The initial set of CATTENS services includes a model library service and a system design repository service. The model library service enables engineers to save and reuse various types of models for systems, subsystems, and vendor products. The system design repository service supports collaborative mission and system design and versioning.

Anticipated Benefits

A fully integrated MBSE toolkit for CubeSat missions and other small projects.

Accelerated development and more comprehensive analysis of early mission concepts.

A Model-Based Engineering (MBE) infrastructure for integration of COTS engineering tools into an open, message-based architecture with a model repository, parts library, and collaboration services.

CATTENS Project (Software Engineering Division)

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Center Independent Research & Development: GSFC IRAD

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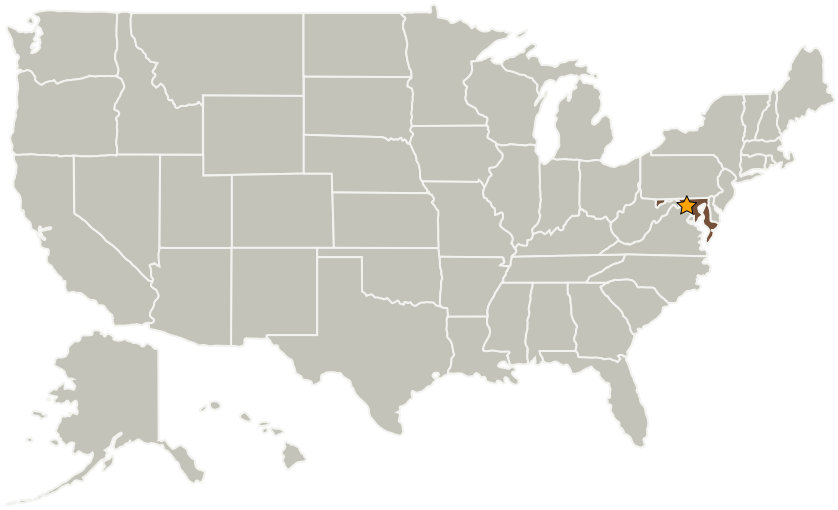
Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations
Maryland

Project Transitions

October 2016: Project Start

Organizational Responsibility

Responsible Mission Directorate:

Mission Support Directorate (MSD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Center Independent Research & Development: GSFC IRAD

Project Management

Program Manager:

Peter M Hughes

Project Managers:

Jacqueline J Le Moigne-stewart
Michael A Johnson

Principal Investigator:

Stephen C Waterbury

Co-Investigators:

Theresa J Brandt
Synthia L Tonn

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September 2017: Closed out

Closeout Summary: The purpose of the Goddard Space Flight Center's Internal Research and Development (IRAD) program is to support new technology development and to address scientific challenges. Each year, Principal Investigators (PIs) submit IRAD proposals and compete for funding for their development projects. Goddard's IRAD program supports eight Lines of Business: Astrophysics; Communications and Navigation; Cross-Cutting Technology and Capabilities; Earth Science; Heliophysics; Planetary Science; Science Small Satellites Technology; and Suborbital Platforms and Range Services.Task progress is evaluated twice a year at the Mid-term IRAD review and the end of the year. When the funding period has ended, the PIs compete again for IRAD funding or seek new sources of development and research funding or agree to external partnerships and collaborations. In some cases, when the development work has reached the appropriate Technology Readiness Level (TRL) level, the product is integrated into an actual NASA mission or used to support other government agencies. The technology may also be licensed out to the industry.The completion of a project does not necessarily indicate that the development work has stopped. The work could potentially continue in the future as a follow-on IRAD; or used in collaboration or partnership with Academia, Industry and other Government Agencies.If you are interested in partnering with NASA, see the TechPort Partnerships documentation available on the TechPort Help tab. http://techport.nasa.gov/help

Images

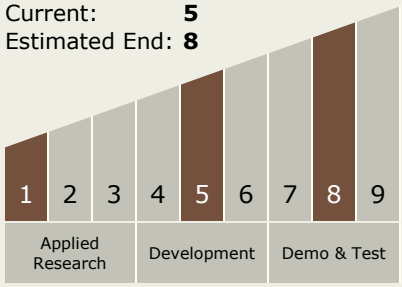
CATTENS Project (Software Engineering Division)
CATTENS Project (Software Engineering Division)
(https://techport.nasa.gov/image/26337)

Project Website:

http://aetd.gsfc.nasa.gov/

Technology Maturity (TRL)

Start: **1**
Current: **5**
Estimated End: **8**



Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
  - TX11.4 Information Processing
    - TX11.4.4 Collaborative Science and Engineering

Target Destinations

Earth, The Moon, Mars